

Amendments to the Claims

Please cancel claims 511, 515, 522, 547, 551, and 558 without prejudice.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-155 (Cancelled).

156. (Currently amended): A system configured to design cardiac instruments, comprising:

a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein one or more computer programs are executable to:

create a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one first image of heart tissue from a human heart; and

use a plurality of first images to create at least a second image of the heart tissue, wherein at least a portion of the second image appears four-dimensional.

157. (Currently amended): A ~~carrier~~ computer-readable medium configured to store program instructions, wherein the program instructions are executable to implement a method to design cardiac instruments, comprising:

creating a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one first image of heart tissue from a human heart; and

using a plurality of first images to create at least a second image of the heart tissue, wherein at least a portion of the second image appears four-dimensional.

158-494 (Cancelled).

495. (Previously presented): The system of claim 156, wherein the pattern is created automatically by at least one of the computer programs based on at least some user input.

496. (Currently amended): The system of claim 495, wherein one or more computer programs are further executable to divide at least one first image into a plurality of sections.

497. (Currently amended): The system of claim 156, wherein the first image comprises a plurality of features, and wherein at least one of the features comprises a physiological factor.

498. (Previously presented): The system of claim 156, wherein at least one of the implants comprises a reinforcing device.

499. (Previously presented): The system of claim 498, wherein the reinforcing device comprises a patch.

500. (Previously presented): The system of claim 156, wherein at least one of the implants comprises an annuloplasty ring.

501. (Previously presented): The system of claim 156, wherein at least one of the implants comprises a suture.

502. (Previously presented): The system of claim 156, wherein at least one of the implants comprises a valve.

503. (Previously presented): The system of claim 156, wherein at least one of the instruments comprises a shaper.

504. (Previously presented): The system of claim 503, wherein the shaper is configurable to expand to a predetermined shape and size.

505. (Previously presented): The system of claim 503, wherein the shaper is configurable to expand to a predetermined shape and size substantially similar to the size and shape of an appropriate left ventricle.

506. (Previously presented): The system of claim 503, wherein the shaper comprises a balloon.

507. (Previously presented): The system of claim 156, wherein at least one of the instruments comprises a guide.

508. (Previously presented): The system of claim 507, wherein the guide comprises an overlay.

509. (Previously presented): The system of claim 507, wherein the guide comprises an overlay, and wherein the overlay comprises indicia configurable to assist a surgical procedure during use.

510. (Currently amended): The system of claim 156, wherein one or more computer programs are further executable to extrapolate at least a portion of at least one feature from at least one first image of human heart tissue.

511. (Cancelled)

512. (Previously presented): The system of claim 510, wherein at least one of the features comprises at least a portion of an image.

513. (Previously presented): The system of claim 510, wherein at least one of the features comprises a numerical feature.

514. (Currently amended): The system of claim 156, wherein one or more computer programs are further executable to:

use at least two first images of human heart tissue to create at least a second image of the

heart tissue, wherein at least a portion of the second image appears three-dimensional.

515. (Cancelled)

516. (Currently amended): The system of claim ~~515~~156, wherein one of the dimensions comprises time.

517. (Currently amended): The system of claim ~~515~~156, wherein at least one of the dimensions comprises at least one physiological factor.

518. (Previously presented): The system of claim 517, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

519. (Currently amended): The system of claim 156, wherein one or more computer programs are further executable to create at least one image of the pattern of at least a portion of at least one cardiac instrument using at least one first image.

520. (Previously presented): The system of claim 519, wherein at least one portion of at least one image of the pattern appears at least three-dimensional.

521. (Currently amended): The system of claim 156, wherein one or more computer programs are further executable to extrapolate at least one portion of at least one feature of the pattern from at least two first images.

522. (Cancelled)

523. (Previously presented): The system of claim 521, wherein at least one of the features comprises at least a portion of an image.

524. (Previously presented): The system of claim 521, wherein at least one of the features comprises a numerical feature.

525. (Previously presented): The system of claim 156, wherein at least one of the computer programs is further executable to assess a volume of at least a portion of the heart tissue.

526. (Currently amended): The system of claim 156, wherein at least one of the computer programs is further executable to:

compare a contrast between two or more sections in at least one first image; and
assess a viability of the heart tissue.

527. (Currently amended): The system of claim 156, wherein at least one of the computer programs is further executable to:

evaluate motion of at least one portion of at least one feature of one or more first images of heart tissue; and
assess asynergy of the heart tissue.

528. (Previously presented): The system of claim 156, wherein at least one of the computer programs is further executable to:

evaluate a curvature of at least a section of a portion of a heart comprising the heart tissue; and
assess a shape of at least the portion of the heart.

529. (Currently amended): The system of claim 156, wherein at least one of the computer programs is further executable to:

assign at least one reference point to at least two first images of the heart tissue;
evaluate a relative movement of at least one of the reference points between at least two first images of the heart tissue; and
assess a viability of the heart tissue.

530. (Previously presented): The system of claim 156, wherein at least one of the computer programs is further executable to:

determine at least a first and second volume of a portion of the heart tissue and blood flow through a portion of the heart; and

assess a mitral regurgitation with a provided velocity of a fluid through at least a portion of the aorta.

531. (Currently amended): The computer-readable ~~carrier~~ medium of claim 157, wherein the pattern is created automatically by at least some of the program instructions based on at least some user input.

532. (Currently amended): The computer-readable ~~carrier~~ medium of claim 531, wherein the program instructions are further executable to implement a method comprising dividing at least one first image into a plurality of sections.

533. (Currently amended): The computer-readable ~~carrier~~ medium of claim 157, wherein at least one of the first images comprises a plurality of features, and wherein at least one of the features comprises a physiological factor.

534. (Currently amended): The computer-readable ~~carrier~~ medium of claim 157, wherein at least one of the implants comprises a reinforcing device.

535. (Currently amended): The computer-readable ~~carrier~~ medium of claim 534, wherein the reinforcing device comprises a patch.

536. (Currently amended): The computer-readable ~~carrier~~ medium of claim 157, wherein at least one of the implants comprises an annuloplasty ring.

537. (Currently amended): The computer-readable ~~carrier~~ medium of claim 157, wherein at least one of the implants comprises a suture.

538. (Currently amended): The computer-readable ~~carrier~~ medium of claim 157, wherein at least one of the implants comprises a valve.

539. (Currently amended): The computer-readable ~~carrier~~ medium of claim 157, wherein at least one of the instruments comprises a shaper.

540. (Currently amended): The computer-readable ~~carrier~~ medium of claim 539, wherein the shaper is configurable to expand to a predetermined shape and size.

541. (Currently amended): The computer-readable ~~carrier~~ medium of claim 539, wherein the shaper is configurable to expand to a predetermined shape and size substantially similar to the size and shape of an appropriate left ventricle.

542. (Currently amended): The computer-readable ~~carrier~~ medium of claim 539, wherein the shaper comprises a balloon.

543. (Currently amended): The computer-readable ~~carrier~~ medium of claim 157, wherein at least one of the instruments comprises a guide.

544. (Currently amended): The computer-readable ~~carrier~~ medium of claim 543, wherein the guide comprises an overlay.

545. (Currently amended): The computer-readable ~~carrier~~ medium of claim 543, wherein the guide comprises an overlay, and wherein the overlay comprises indicia configurable to assist a surgical procedure during use.

546. (Currently amended): The computer-readable ~~carrier~~ medium of claim 157, wherein the program instructions are further executable to implement a method comprising:

extrapolating at least a portion of at least one feature from at least one first image of

human heart tissue.

547. (Cancelled)

548. (Currently amended): The computer-readable ~~carrier~~-medium of claim 546, wherein at least one of the features comprises at least a portion of an image.

549. (Currently amended): The computer-readable ~~carrier~~-medium of claim 546, wherein at least one of the features comprises a numerical feature.

550. (Currently amended): The computer-readable ~~carrier~~-medium of claim 157, wherein the program instructions are further executable to implement a method comprising:

using at least two first images of human heart tissue to create at least a second image of the heart tissue, wherein at least a portion of the second image appears three-dimensional.

551. (Cancelled)

552. (Currently amended): The computer-readable ~~carrier~~-medium of claim ~~551~~157, wherein one of the dimensions comprises time.

553. (Currently amended): The computer-readable ~~carrier~~-medium of claim ~~551~~157, wherein at least one of the dimensions comprises at least one physiological factor.

554. (Currently amended): The computer-readable ~~carrier~~-medium of claim 553, wherein at least one physiological factor comprises hormone B-type natriuretic peptide.

555. (Currently amended): The computer-readable ~~carrier~~-medium of claim 157, wherein the program instructions are further executable to implement a method comprising:

creating at least one image of the pattern of at least a portion of at least one cardiac instrument using at least one first image.

556. (Currently amended): The computer-readable ~~carrier~~-medium of claim 555, wherein at least one portion of at least one image of the pattern appears at least three-dimensional.

557. (Currently amended): The computer-readable ~~carrier~~-medium of claim 157, wherein the program instructions are further executable to implement a method comprising extrapolating at least one portion of at least one feature of the pattern from at least two first images.

558. (Cancelled)

559. (Currently amended): The computer-readable ~~carrier~~-medium of claim 557, wherein at least one of the features comprises at least a portion of an image.

560. (Currently amended): The computer-readable ~~carrier~~-medium of claim 557, wherein at least one of the features comprises a numerical feature.

561. (Currently amended): The computer-readable ~~carrier~~-medium of claim 157, wherein the program instructions are further executable to implement:
assessing a volume of at least a portion of the heart tissue.

562. (Currently amended): The computer-readable ~~carrier~~-medium of claim 157, wherein the program instructions are further executable to implement:
comparing a contrast between two or more sections in at least one first image; and
assessing a viability of the heart tissue.

563. (Currently amended): The computer-readable ~~carrier~~-medium of claim 157, wherein the program instructions are further executable to implement:
evaluating motion of at least one portion of at least one feature of one or more first images of heart tissue; and
assessing asynergy of the heart tissue.

564. (Currently amended): The computer-readable ~~earlier~~ medium of claim 157, wherein the program instructions are further executable to implement:

evaluating a curvature of at least a section of a portion of a heart comprising the heart tissue; and

assessing a shape of at least the portion of the heart.

565. (Currently amended): The computer-readable ~~earlier~~ medium of claim 157, wherein the program instructions are further executable to implement:

assigning at least one reference point to at least two first images of the heart tissue;

evaluating a relative movement of at least one of the reference points between at least two

first images of the heart tissue; and

assessing a viability of the heart tissue.

566. (Currently amended): The computer-readable ~~earlier~~ medium of claim 157, wherein the program instructions are further executable to implement:

determining at least a first and second volume of a portion of the heart tissue and blood flow through a portion of the heart; and

assessing a mitral regurgitation with a provided velocity of a fluid through at least a portion of the aorta.

567. (New): A system configured to design cardiac instruments, comprising:

a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein one or more computer programs are executable to:

create a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one first image of heart tissue from a human heart;

evaluate motion of at least one portion of at least one feature of one or more first images of heart tissue; and

assess asynergy of the heart tissue.

568. (New): A system configured to design cardiac instruments, comprising:

a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein one or more computer programs are executable to:

create a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one first image of heart tissue from a human heart;

assign at least one reference point to at least two first images of the heart tissue;

evaluate a relative movement of at least one of the reference points between at least two first images of the heart tissue; and

assess a viability of the heart tissue.

569. (New): A system configured to design cardiac instruments, comprising:

a CPU; and

a system memory coupled to the CPU, wherein the system memory stores one or more computer programs executable by the CPU;

wherein one or more computer programs are executable to:

create a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one first image of heart tissue from a human heart;

determine at least a first and second volume of a portion of the heart tissue and blood flow through a portion of the heart; and

assess a mitral regurgitation with a provided velocity of a fluid through at least a portion of the aorta.

570. (New): A computer-readable medium configured to store program instructions, wherein the program instructions are executable to implement a method to design cardiac instruments, comprising:

- creating a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one first image of heart tissue from a human heart;
- evaluating motion of at least one portion of at least one feature of one or more first images of heart tissue; and
- assessing asynergy of the heart tissue.

571. (New): A computer-readable medium configured to store program instructions, wherein the program instructions are executable to implement a method to design cardiac instruments, comprising:

- creating a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one first image of heart tissue from a human heart;
- assigning at least one reference point to at least two first images of the heart tissue;
- evaluating a relative movement of at least one of the reference points between at least two first images of the heart tissue; and
- assessing a viability of the heart tissue.

572. (New): A computer-readable medium configured to store program instructions, wherein the program instructions are executable to implement a method to design cardiac instruments, comprising:

- creating a pattern of at least a portion of at least one patient-specific cardiac instrument or implant using at least one first image of heart tissue from a human heart;
- determining at least a first and second volume of a portion of the heart tissue and blood flow through a portion of the heart; and
- assessing a mitral regurgitation with a provided velocity of a fluid through at least a portion of the aorta.